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most kindly presented the whole collection on exhibition to the Museum of Archæology at Cambridge, Mass., and since its arrival I have again examined the specimens, and have no hesitation in pronouncing a large proportion of them as the work of man. Some are simple chips or flakes, split off in the process of working the stones into shape. Others are pointed pieces of quartz which may in part be natural fractures, but which have received a few finishing blows from the hands of palæolithic men. A few others, including one or two not of quartz, are evidently natural forms, but in the collection are about a dozen unquestionably chipped implements, which, except that they are made of quartz instead of argillite, closely resemble the palæolithic implements found by Dr. Abbott in the New Jersey gravels. For the present I refer to Miss Babbitt's paper, now in course of publication by the American Association for the Advancement of Science for further details, but I hope at no very distant day to give illustrations of these specimens in our reports, as the museum has now become their owner.—*F. W. Putnam.*

MICROSCOPY AND HISTOLOGY.[1]

METHODS OF STUDYING THE SO-CALLED LIVER OF THE CRUSTACEA.[2]—For the study of fresh tissues Dr. Frenzel places a small piece of the organ on the slide, *in the blood of the individual from which it was taken ;* or, *in sea-water diluted until the salt contained amounts to about* 1½–2 per cent (one part distilled water and one part sea-water from the Bay of Naples). The so-called "physiological salt solution" (¾ per cent) worked unfavorably, causing maceration.

Various fluids were employed for killing and hardening, partly for determining the effect of different reagents on the nuclei and the protoplasm, and partly for finding the best means of preparing the object for sectioning.

Very good preparations were obtained with *warm* alcohol from seventy per cent to ninety per cent; while direct immersion in absolute alcohol did not prove advantageous. This treatment gave good results for the cell protoplasm, but destroyed the structure of the nuclei. Still better results were obtained for the cells (not for the nuclei) by adding a few drops of iodine to seventy per cent alcohol.

The most satisfactory results were reached by immersing the object in a saturated aqueous solution of corrosive sublimate from ten to thirty minutes, then washing with water, and finally replacing the water gradually with alcohol.

Perenyi's fluid gave best results when combined with corrosive sublimate. The object was left from five to ten minutes in the first-named fluid, then transferred to the second and left for the same time.

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[1] Edited by Dr. C. O. WHITMAN, Mus. Comparative Zoölogy, Cambridge, Mass.

[2] Johannes Frenzel. "Ueber die Mitteldarmdrüse der Crustaceen," Mittheil. a. d. Zool. Station, v, p. 51, 1884.

While these methods were good for the Decapods, Amphipods and Phronomidæ, the Isopods required a different treatment. With these Kleinenberg's picro-sulphuric acid, diluted with an equal volume of water, and allowed to act 15–20 minutes, gave much better preparations than the sublimate solution.

A NEW SECTION FLATTENER.—The following device as an anti-roller has been recommended by Gage and Smith:[1]

"The section flattener consists of a rod (*b*) of spring brass, about 5^{mm} in diameter, flattened on two sides (*B* and *D*), extending parallel with the edge of the knife, and projecting about 2^{mm} beyond it. Opposite the cutting edge the space between the rod and knife is about 1^{mm}, while nearer the back of the knife the distance is greater (Fig. 1 *D*, *a*, *b*). At each end the rod is bent at right angles. Next the handle it passes through a hollow cylinder (Fig. 1, *d*), into which it is secured by a milled nut (Fig. 1, *c*). At the free end of the knife, the rod is hooked over the back of the blade (Fig. 1, *A*), the spring of the wire securing it firmly. At the two angles of the rod it rests on the blade, so that in cutting sections any amount of pressure may be applied at these points. The rod is attached to the knife by means of a clamp, which consists of two pieces clasping the tang and held together by a screw (Fig. 1, *C*). To clean the knife and rod, or to remove sections, the rod may be raised as it swings freely in the hollow cylinder attached to (*d*). The rod may be removed by removing the milled nut (*c*); the entire apparatus may be removed from the knife by loosening the screw (*f*)."

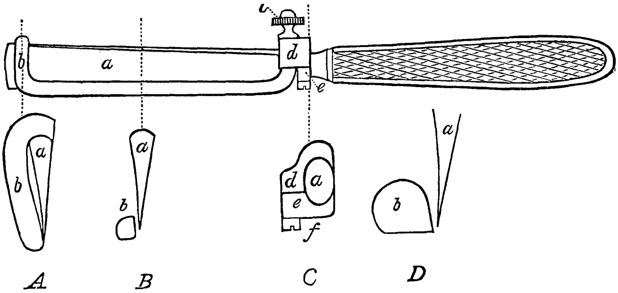

FIG. 1.—The section flattener attached to a knife. (*a*), blade of knife; (*a*¹), tang; (*b*), section flattener; (*c*), milled nut; (*d*), the part of the clamp bearing the hollow cylinder; (*e*), part of clamp; (*f*), screw holding the two parts of the clamp together.

A, section showing the end of the flattener hooked over the blade; *B* and *D*, sections showing the form of the rod (*b*), and its position with relation to the edge of the knife; *C*, section of the tang, showing the manner of attaching the clamp.

The section-smoother introduced by Andres, Giesbrecht, and

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[1] "Section Flattener for Dry Section Cutting." *The Microscope, February, 1884.*

Mayer, described in the December number of this journal, is one of the simplest devices that has thus far been offered, and is perfectly adapted to both large and small sections. It is provided with an adjusting apparatus, the absence of which is a defect in the above instrument of Gage and Smith, and is applicable to knives of different forms and sizes.

Methods of Preparing the Alcyonaria.—Dr. Wilson[1] has employed with success the following methods in preparing the Alcyonaria for histological purposes:

"After testing many preservative and staining fluids, the following methods were adopted as giving, upon the whole, the best results: The animals were suddenly killed by momentary immersion in a mixture of one part strong acetic acid and two parts of a concentrated solution of corrosive sublimate in fresh water. After being quickly washed, they were transferred to a concentrated solution of sublimate in fresh water, and left two or three hours, the internal cavities being injected with the solution where this was possible. They were then thoroughly washed in running sea water, then in distilled water, and finally preserved in successive grades of alcohol.

"A weak solution of iodine in alcohol and sea water also gives beautiful results, but is less certain in its action. For staining I have used Grenacher's alum-carmine, borax-carmine, picro-carmine and Kleinenberg's hæmatoxyline. Much the best results are obtained by the use of alum-carmine, but it must be used as quickly as possible, since the gelatinous tissue of the mesoderm is apt to shrink if the object be left too long in aqueous fluids. The tissues were decalcified with very weak nitric or hydrochloric acid in ninety per cent alcohol. For maceration, the Hertwig's well-known mixture of osmic and acetic acids gives good results."

PERENYI'S FLUID.[2]—The following mixture is recommended by Perenyi for hardening eggs and embryos. It kills instantaneously, and preserves the object in its natural form and size without the least shrinkage. Eggs thus preserved are not brittle, but "cut like cartilage:"

Nitric acid (10 per cent)	4 parts.
90 per cent alcohol	3 "
Chromic acid (½ per cent)	3 "

This mixture assumes a violet hue after a short time.

Eggs may be left in this fluid 4–5 hours; then twenty-four hours in seventy per cent alcohol; then in ninety per cent. alcohol one or two days; finally 4–5 days in absolute alcohol.

The staining fluid may be best added to the fluid itself, so that the eggs are hardened and colored at the same time. Fuchsine and analine red dissolve directly in the fluid, while eosine and purpurine are first dissolved in three parts alcohol.

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[1] Dr. E. B. Wilson, "The mesenterial Filaments of the Alcyonaria." Mittheilungen aus der Zoölog. Station zu Neapel. v., p. 3, 1884.

[2] Josef Perenyi. "Ueber eine neue Erhärtungsflüssigkeit," Zool. Anzeiger, v, No. 119, p. 459, 1882.

Picro-carmine or borax-carmine mixed with the fluid, give excellent staining. The addition of staining fluids causes a precipitate, so that before using the fluid should be filtered.

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SCIENTIFIC NEWS.

— In the death of Professor Arnold Guyot, who was born near Neufchatel, in 1807, we have lost our most eminent geographer, and a geologist whose reputation was worldwide. He began his life's work as a student of Ritter, the influence of whose instruction is seen in the "Earth and Man." While a professor in the University of Neufchatel, where he filled the chair of universal history and physical geography, from 1839 to 1848, he studied, with Agassiz, the structure and physics of the existing glaciers, but especially distinguished himself by determining the limits of the ancient glaciers of Switzerland, Savoy and Lombardy, and demonstrated the identity of the laws of the distribution of erratic boulders and gravels with those of glacial moraines. In 1848 he came to this country, and was for thirty years perhaps the most distinguished member of the faculty of Princeton College. While here he organized for the Smithsonian Institution a system of meteorological observations, and thus paved the way for the establishment of the present signal bureau. His most important geographical essay was his "Physical structure of the Appalachian mountains" (1861). He wrote a series of text-books on physical geography, and stimulated greatly the popular interest and appreciation of this subject. As a lecturer and writer, he was clear, comprehensive and finished; as a man, singularly pure, simple-hearted, unselfish and sincere. It was a benediction to come in contact with him.

— Dr. George Engelmann, who died February 4, was born at Frankfort-on-the-Main, February 2, 1809. Removing to the United States in 1832, he soon after settled as a physician at St. Louis. His botanical studies, which made him famous, were carried on in the limited leisure of a busy practice. For nearly thirty years he studied the Cactaceæ, his elaborate monographs appearing in the reports of the Pacific Railroad and the Texas Boundary survey. He monographed the pines, and the North American group of Cuscuta, Juncus, Euphorbia, Quercus, Vitis and Agave. He ranked as a botanist only second to Dr. Gray. He was one of the founders and most active members of the St. Louis Academy of Science. He also was the oldest American meteorologist, his observations extending over a period of forty years.

— The *Zoölogischer Jahresbericht for 1882*, so far as relates to the invertebrates, has made its appearance. It is of the same size, with the same editors, as in former years, and is equally in-